

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P-012/99</b>	<b>FOR FURTHER ACTION</b>		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. <b>PCT/SI 99/ 00003</b>	International filing date (day/month/year) <b>05/02/1999</b>	(Earliest) Priority Date (day/month/year) <b>17/02/1998</b>	
Applicant  <b>JURJAVCIC, Damjan et al.</b>			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.  
☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
2. ☐ **Certain claims were found unsearchable** (See Box I).
3. ☐ **Unity of Invention is lacking** (see Box II).

**4. With regard to the title,**

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No.**

- ☒ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.
- 1  
☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/SI 99/00003

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G09F11/02 G09F13/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 679 362 A (PROGYR) 22 January 1993 see the whole document	1,6
A	SI 9 300 366 A (JURJAVCIC DAMJAN) 31 December 1993 see the whole document	1,6
A	WO 88 09546 A (TECHNOLIZENZ BV ;BUECHEL KURT F (LI)) 1 December 1988 see claim 10; figure 7	1
A	EP 0 357 942 A (DEN HAAG INTERLICENSE BV) 14 March 1990 see column 6, line 45 - column 7, line 5; figure 2	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier document but published on or after the international filing date  
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  
 "&" document member of the same patent family

Date of the actual completion of the international search

7 June 1999

Date of mailing of the international search report

14/06/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
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 Fax: (+31-70) 340-3016

Authorized officer

Puhl, A

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/SI 99/00003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
FR 2679362	A	22-01-1993	NONE		
SI 9300366	A	31-12-1993	NONE		
WO 8809546	A	01-12-1988	AU	611156 B	06-06-1991
			AU	1720688 A	21-12-1988
			DE	8890059 U	01-06-1989
			EP	0314730 A	10-05-1989
			JP	1503812 T	21-12-1989
EP 0357942	A	14-03-1990	CH	677156 A	15-04-1991
			JP	2186695 A	20-07-1990

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P-012/99</b>	<div style="display: flex; justify-content: space-between;"> <div> <b>FOR FURTHER ACTION</b> </div> <div>           See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)         </div> </div>	
International application No. <b>PCT/SI99/00003</b>	International filing date (day/month/year) <b>05/02/1999</b>	Priority date (day/month/year) <b>17/02/1998</b>
International Patent Classification (IPC) or national classification and IPC <b>G09F11/02</b>		
Applicant <b>JURJAVCIC, Damjan et al.</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>31/08/1999</b>	Date of completion of this report  <div style="text-align: right; font-size: 1.2em;"><b>23. 12. 99</b></div>	
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div> <b>European Patent Office</b>            D-80298 Munich            Tel. +49 89 2399 - 0 Tx: 523656 epmu d            Fax: +49 89 2399 - 4465         </div> </div>	Authorized officer  <b>Louvion, B</b>  Telephone No. +49 89 2399 2845	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SI99/00003

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-9 as originally filed

**Claims, No.:**

1-6 as originally filed

**Drawings, sheets:**

1/5-5/5 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SI99/00003

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims 1-6
	No: Claims
Inventive step (IS)	Yes: Claims 1-6
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-6
	No: Claims

**2. Citations and explanations**

**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/SI99/00003

**I. Ad Section I.:**

- 1 Reference is made to the following documents:  
D1: FR-A-2 679 362 (PROGYR) 22 January 1993  
D2: SI-A-9 300 366 (JURJAVCIC DAMJAN) 31 December 1993  
D3: WO 88 09546 A (TECHNOLIZENZ BV ;BUECHEL KURT F (LI)) 1 December 1988  
D4: EP-A-0 357 942 (DEN HAAG INTERLICENSE BV) 14 March 1990

**II. Ad Section V.:**

- 2 The claimed invention for which protection is sought can be made or used (in the technological sense) in any kind of industry and shall therefore be considered industrially applicable according to Article 33(4)PCT.
- 3 Independent claims 1 & 6 : Document D1, which is considered to represent the most relevant state of the art, discloses a device from which the subject-matter of claims 1 & 6 differs in the features of the characterising part of the respective claim.
  - 3.1 The subject-matter of claims 1 & 6 is therefore novel (Article 33(2) PCT).
- 4 As none of the cited documents renders obvious the characterising features of the independent claims 1 & 6 in combination with D1, the claims 1 & 6 of the present application are considered as involving an inventive step (Article 33(3) PCT).
  - 4.1 More particularly, objects surrounded by an opaque cylinder having a transparent slot (claim 1) and the display of these objects being made of columns being visible only in one direction from the viewing angle (claim 6) are not to be found in the available prior art.
- 5 Claims 2-5 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/SI99/00003

**III. Ad Section VII.:**

- 6 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document **D1** is not mentioned in the description, nor is this document identified therein.
- 6.1 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).



## TENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 23 September 1999 (23.09.99)	
<b>International application No.</b> PCT/SI99/00003	<b>Applicant's or agent's file reference</b> P-012/99
<b>International filing date</b> (day/month/year) 05 February 1999 (05.02.99)	<b>Priority date</b> (day/month/year) 17 February 1998 (17.02.98)
<b>Applicant</b> JURJAVCIC, Damjan	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

31 August 1999 (31.08.99)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

C. Carrié

Telephone No.: (41-22) 338.83.38

5           **DEVICE PROVIDING PICTURE VISIBILITY FROM ALL SIDES**

          The invention refers to a device which provides picture of the object  
10   visibility from all sides, whereby the object exposed to view can be in the  
form of an inscription or picture or three-dimensional object or running  
inscription or mobile picture etc. The construction of the device depends  
on the purpose of use. The picture is the same for all viewers standing  
around the device and it is presented as a high-frequency and/or true  
15   picture. The device further allows for viewing of different pictures  
depending on the viewer's position around the device. The invention  
belongs to class G 09 F 11/02 of the international patent classification.

          The technical problem successfully solved by the device in question  
involves the design and construction of such device which enables high-  
20   frequency and/or actual presentation of identical information in any form  
(inscription, picture, three-dimensional object, running inscription, mobile  
picture, mobile object etc.) from any position on the horizontal level  
around the device and/or provides high-frequency, actual display of  
different information in whatever form in different positions on the  
25   horizontal level around the device.

The existing information media, such as advertising panels, illuminated inscriptions on walls and high buildings, LED and LCD displays and TV screens are not visible from all sides but only from a single direction from  
5 a specific viewing angle.

The information media which are exposed to several sides, e.g. four-panel boards, are visible from all sides, but the viewer can also see the adjacent information medium, whereas the information is seen from the right angle from certain positions only.

10 The information media which turn around a vertical axle, e.g. two-panel, three-panel revolving boards, are visible from all sides, but the information is not simultaneously visible from all sides.

As a matter of fact, the device providing picture visibility from all sides, such as referred to in this invention, is a fast rotating opaque cylinder  
15 discontinued lengthwise by a transparent slot, whereby the cylinder rotates at high angular velocity around its axle together with the object. The transparent slot is positioned in front of the object. Depending on the type of the viewed object (two-dimensional object, three-dimensional object), the latter shall be of appropriate design, so that the picture of the  
20 object is visible in the desired form.

The device providing picture visibility from all sides, as referred to in this invention, will be explained in detail on the basis of the example and the pictures, whereof

- 2  
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- Figure 1** shows the device referred to in this invention, which provides visibility of the identical pictures of the object from all sides, as partial section and as side view;
- Figure 2** shows the device referred to in this invention, which provides visibility of the identical pictures of the object from all sides, as sections A-A and B-B;
- Figure 3** shows the diagram of the device referred to in this invention, providing picture visibility of viewed objects in the form of inscription and three-dimensional object, as partial section and side view as well as the respective ground plan;
- Figure 4** shows the diagram of the device which provides visibility of the different pictures of the object from different viewing directions, as a ground plan and with reference to display brightness in positions  $\alpha_1$ ,  $\alpha_2$ ,  $\alpha_3$  ...  $\alpha_n$ ;
- Figure 5** shows an example of the  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ...  $\beta_n$  viewing angle range, whereby the viewer can see a different picture of the object at every viewing angle.

The device providing picture visibility of an object and/or of several objects from all sides and whereof the basic design is shown in Figure 3 allows for viewing of a three-dimensional object 3a (static and mobile three-dimensional object) and of a two-dimensional object 3b (inscriptions, pictures, mobile pictures, running inscription) from all sides, with high frequency, identically to all viewers around the device, whenever an opaque cylinder 1 with the object 3 rotates at high angular velocity around its axle; the transparent slot 2 lengthwise discontinuing the opaque cylinder 1 is always located in front of the object 3. The opaque cylinder 1 may be a dark and non-shiny tube with a cut-out slot 2 or a colourless transparent tube covered with a dark, opaque and non-shiny layer discontinued for the width of the transparent slot 2, or an opaque cylinder 1 discontinued by a transparent slot 2 which during the operation constantly interrupts the opaque cylinder in the way that it is constantly in front of the object 3. Such three-dimensional object 3a as well as the two-dimensional object 3b shall be appropriately shaped. The two-dimensional object 3b, if inscription or picture, must be curved to give a straight picture provided by the device. The three-dimensional object 3b must be deformed to give the desired object picture provided by the device. The curved shape and/or the deformation of the viewed object 3 depends on the distance of the object 3 from the slot 2 as well as on the purpose of the device. With the device in question, designed for remote viewing, the

objects 3 are strongly deformed, but with devices designed for viewing at short distances the objects 3 are less deformed.

The width of the slot 2 influences the quality of the picture of the object 3. With a narrow slot 2 the picture of the object 3 is sharp enough, but less bright. With a wide slot 2 the situation is, however, just the opposite.

To provide a high frequency (not blinking) picture of the object it is necessary to increase the frequency of the device itself, which can be achieved by increasing the number of revolutions or by increasing the number of transparent slots and identical objects 3.

The objects 3 under observation may be real objects (a two-dimensional inscription 3b fixed to the structure; a three-dimensional object 3a fixed to the structure of the device) or apparent objects (object 3 as a holographic projection; object 3 is apparent, its visibility can be achieved on the optical level, with mirrors, prisms, lenses etc.).

The objects 3 under observation shall be bright enough. They may be well illuminated or they radiate light themselves. The brightness of objects 3 shall be a high-frequency one or constant on a micro time interval.

Figures 1 and 2 show an example of the structure of the device referred to in this invention, which consists of a fast rotating rotor, a driving unit, an electric system which enables transmission of electric current to the rotor and to the housing of the device.

The rotor consists of a dark non-shiny tube with three transparent slots 2, three curved two-dimensional objects 3 with inscription, cover 10 and

11, slip rings and wires for electric current transmission to light sources 7, which makes the electric system 13 in the rotor, bearing 14, lamellas 6 and light sources 7.

The rotor is assembled in the way that the tube 1 and the two-dimensional objects 3 fit tightly into the grooves of the covers 10 and 11. The slip rings of the electric system 13, the lamellas 6 and the light sources 7 are fixed to the rotor structure, whereas the bearings 14 are pressed into the covers 10 and 11. The transparent slots 2 are positioned in front of the objects 3.

10 The rotor rotates on the axle 4 on bearings 14 and is axially blocked with a axial clamp ring 15. The rotor is driven via the shaft 5 by the electromotor 12. The shaft 5 is fixed by screw to the cover 11, whereas on the shaft of the electromotor 12 it is protected against distortion with a wedge.

15 The plate 16 is fixed by screw to the base 19. The electromotor 12, the axle 4 and the brushes of the electric system 13 are fixed by screw to the plate 16.

The protective external transparent tube 17 is mounted and fixed by screw to the housing 19 and cover 18.

20 The dark non-shiny tube 1 may be provided with cut-out slots 2 or the transparent tube is covered with a dark, opaque, non-shiny layer, discontinued for the width of the transparent slot 2.

The width of the slot 2 influences the quality of the picture of the object 3. If the slot 2 is narrow, the picture of the object is sharp enough, but its brightness is worse. With a wide slot 2 the situation is just the opposite.

The two-dimensional object 3 is illuminated by light sources 7. The  
5 illumination of the object 3 may be increased by application of an internal chrome coating of the tube 1, which provides less heating of the tube 1 due to light sources 7.

Internal cooling of the device referred to in this invention, which is heated by the light sources 7, is achieved with objects 3, with boreholes 8  
10 on the lower cover 10 and with boreholes 9 on the upper cover 11. The boreholes 8 are located at a different distance from the rotor axle than the boreholes 9.

The width of the visible part of the picture of the viewed object 3 is limited with lamellas 6.

15 To provide a high frequency (not blinking) picture of the inscription on the object 3, the device shall operate at sufficient frequency. In the case explained this can be achieved with three transparent slots 2, with three two-dimensional objects 3 and with a sufficiently high number of revolutions of the electromotor 12.

20 The transmission of electric current to the rotating part of the device is effected through the electric system 13, which consists of brushes, electric installation and slip rings.



The safety of the device can be achieved with a safety transparent tube  
17.

Figure 4 shows the diagram of the device which allows for high-frequency display of different pictures of object viewed by viewers  
5 standing around the device. Such pictures of the objects 3 are different, depending on the viewers' positions around the device. Object 3 is the electronic display.

The electronics of the displayed object 3 - the electronic display shall operate in the way that at the angle  $\alpha_1$  the first column of the display S1  
10 lights up, at the angle  $\alpha_2$  the second column of the display S2 lights up, at the angle  $\alpha_3$  the third column of the display S3 lights up, at the angle  $\alpha_n$  ... the nth column of the display S<sub>n</sub> lights up. Then the display is visible only in one direction and the column shall be lit for a certain time interval only. The cycle of consecutive lighting up of the first, the second ... the nth  
15 column makes up the desired picture of the object which the viewer can see as a true, non-blinking picture.

The time interval of column brightness determines the viewing angle  $\beta$  under which the picture of the object is still visible with reference to the original direction.

20 The angle  $\beta$  may be of different size, yet within such limits that the display can be visible as whole. By changing the viewing distance R, the viewed picture of the display becomes curved, which results in visibility of only a certain width of the display picture. The above problems can be

avoided with a sufficient angle  $\beta$  and a display depending on the viewing distance, whereof the consequence is a limited number of different display pictures exposed to viewing.

At viewing beyond the angle  $\beta$ , the viewer can see a new display  
5 picture. Figure 5 shows the viewing angle ranges  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , .....  $\beta_n$ , in which the viewer can see the picture of the object 3 which may be different from every viewing angle.

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## PATENT CLAIMS

1. A device providing picture visibility from all sides, which has the shape  
5 of a cylinder inside which the picture of the object exposed to view is  
visible, which can be in the form of an inscription or picture or three-  
dimensional object or a running inscription or mobile picture or mobile  
three-dimensional object, whereby the picture of the object inside the  
device is the same and simultaneously visible for all viewers around the  
10 device, and it is presented as a normal picture,

**characterized in that**

it consists of the objects (3) surrounded by an opaque cylinder (1),  
lengthwise discontinued by a transparent slot (2), whereby the opaque  
cylinder (1) rotates at high angular velocity around its axle together with  
15 the object (3), whereas the transparent slot (2) is always located in  
front of the object (3).

2. A device providing picture visibility from all sides, as referred to in claim  
1,

20 **characterized in that**

the opaque cylinder (1) may be a dark and non-shiny tube with a cut-  
out slot (2) or a colourless transparent tube covered with a dark,  
opaque and non-shiny layer discontinued for the width of the  
transparent slot (2).

3. A device providing picture visibility from all sides, as referred to in claims 1 and 2,

5                   **characterized in that**

the opaque cylinder (1) is discontinued by several transparent slots (2) cut-out lengthwise and that it rotates together with several objects (3).

4. A device providing picture visibility from all sides, as referred to in  
10                   claims 1 through 3,

**characterized in that**

the two-dimensional objects (3) in the cylinder (1) shall be curved, whereas the three-dimensional objects (3) shall be duly deformed.

- 15   5. A device providing picture visibility from all sides, as referred to in claim 1,

**characterized in that**

20                   the dark non-shiny tube (1) with transparent slots (2), which is fixed to the covers (10, 11 ), rotates, together with the objects (3) and with other internal elements, at high angular velocity around a fixed axle (4) on bearings (14), whereas the rotating elements are driven via a shaft (5) and a fast rotating electromotor (12); the boreholes (8) and (9) are at different distance from the axle (4), whereas the static part of the axle

(4), the plate (16), the static part of the electric system (13), the electromotor (12) housing, the base (19) are fixed together by screws; the protective transparent tube (17) is mounted and fixed by screw to the base (19) and cover (18).

5

6. A device providing picture visibility from all sides, the picture of the object being seen only from the viewing angle, whereas outside the viewing angle another picture is visible, provided that an electronic display is used,

10

**characterized in that**

15

the electronic display operates in the way that at the angle ( $\alpha_1$ ) the first column of the display (S1) lights up, at the angle ( $\alpha_2$ ) the second column of the display (S2) lights up, at the angle ( $\alpha_n$ ) the... nth column of the display (S<sub>n</sub>) lights up, so that the display picture is visible only in one direction from the viewing angle ( $\beta$ ), whereas individual column shall be lit for a certain time interval only, which determines the viewing angle ( $\beta$ ) from which the picture of the object is still visible with reference to the original direction.

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1/5

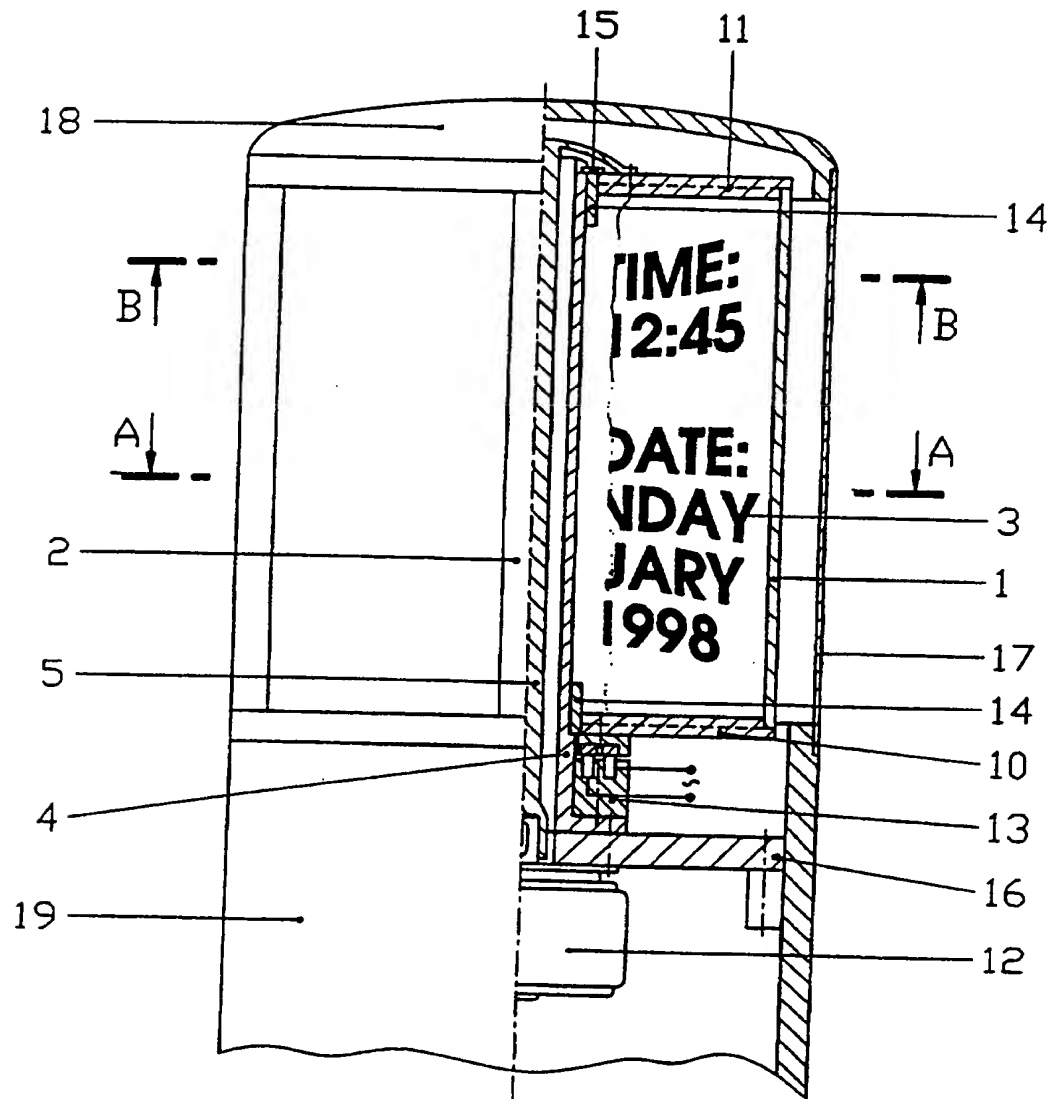


FIG. 1

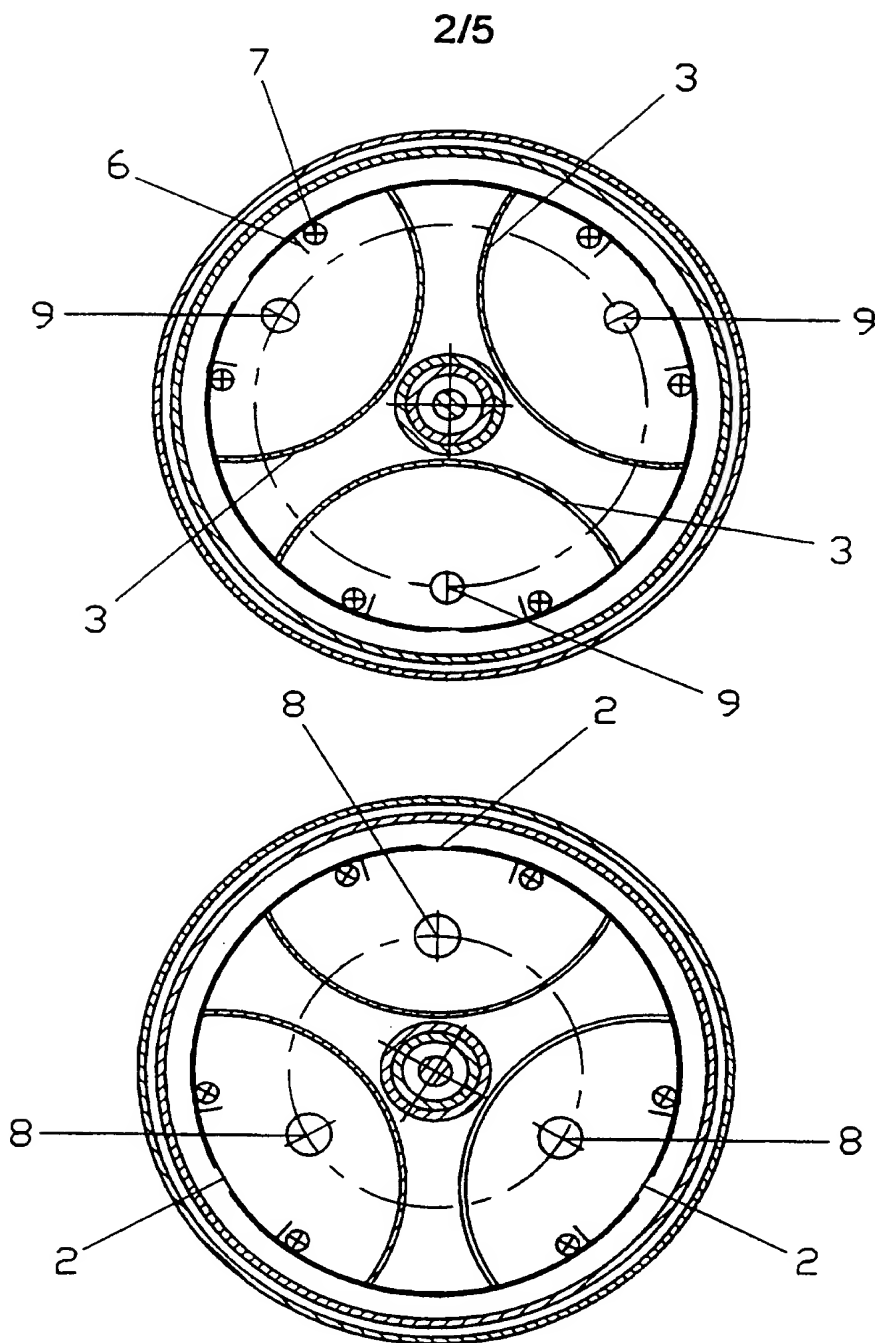


FIG. 2

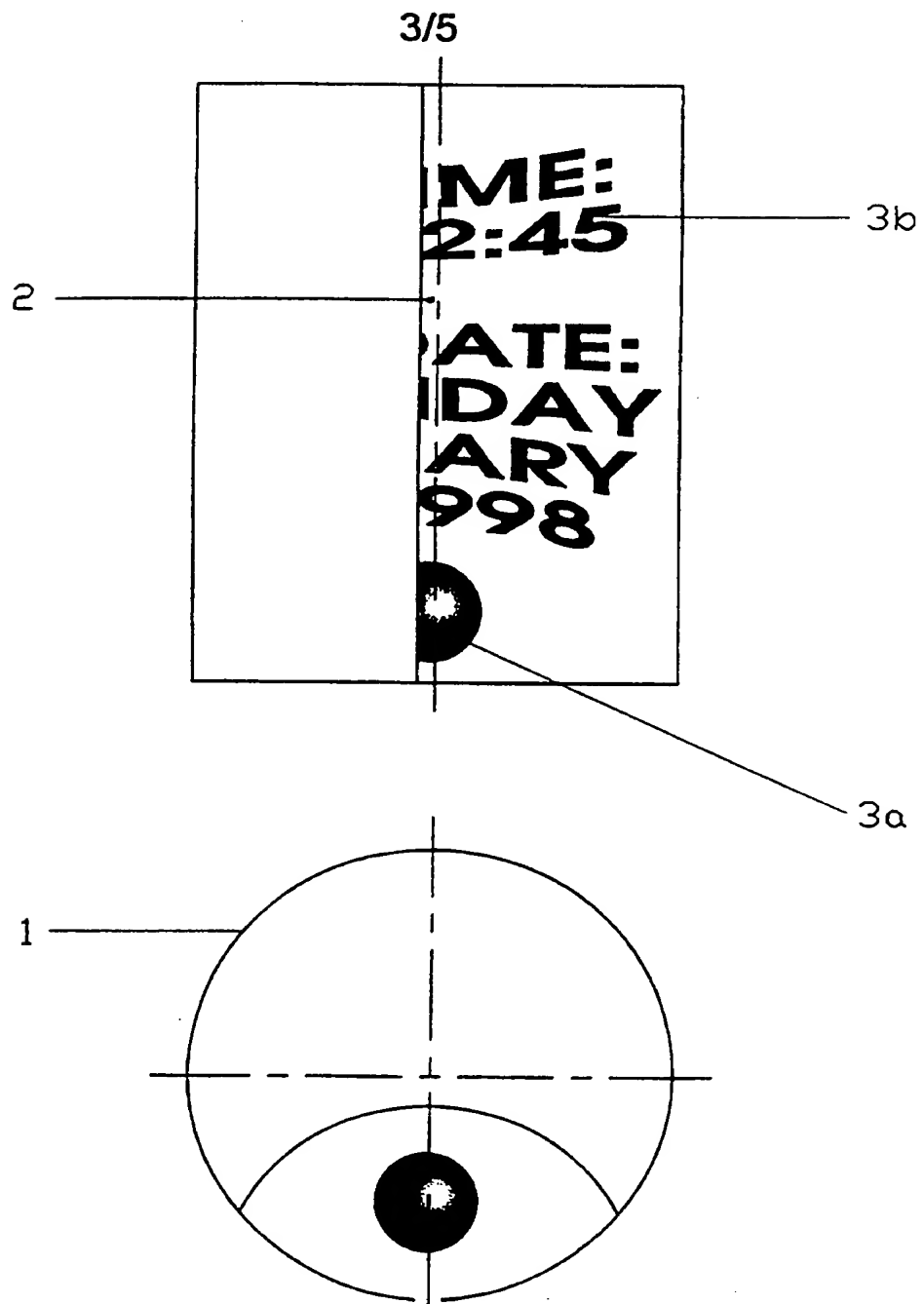


FIG. 3



4/5

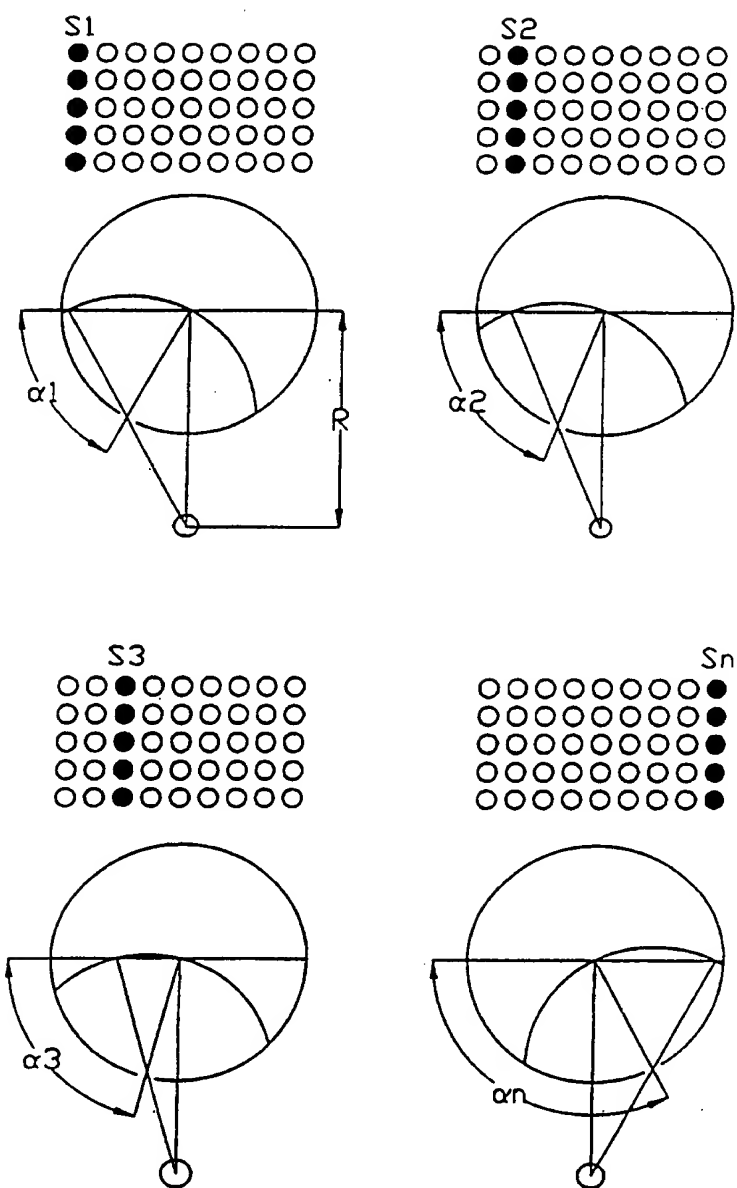


FIG. 4

5/5

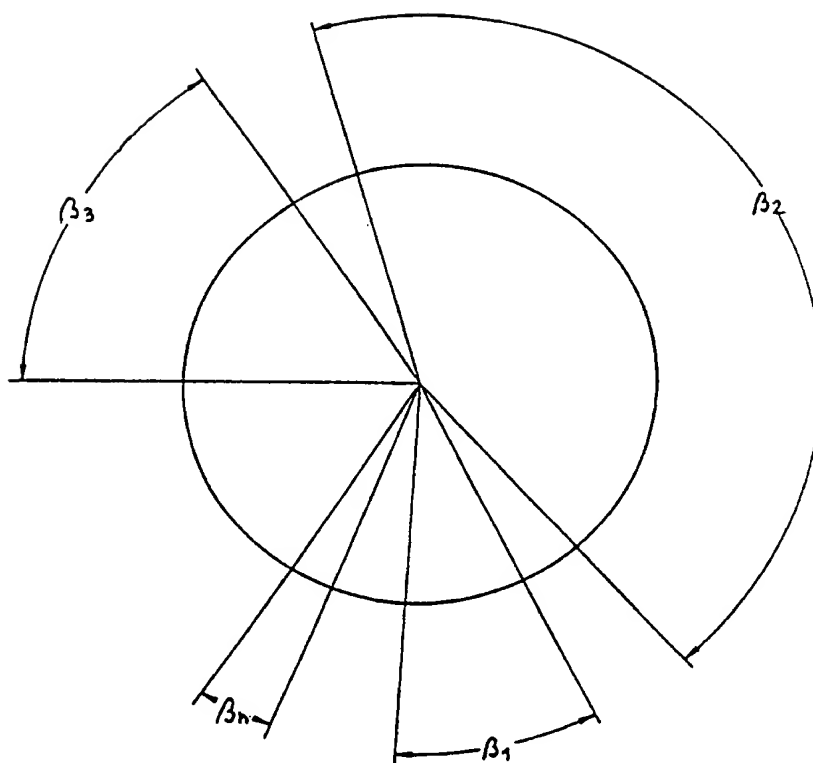


FIG. 5

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/SI 99/00003

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G09F11/02 G09F13/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 679 362 A (PROGYR) 22 January 1993 see the whole document ---	1,6
A	SI 9 300 366 A (JURJAVCIC DAMJAN) 31 December 1993 see the whole document ---	1,6
A	WO 88 09546 A (TECHNOLIZENZ BV ;BUECHEL KURT F (LI)) 1 December 1988 see claim 10; figure 7 ---	1
A	EP 0 357 942 A (DEN HAAG INTERLICENSE BV) 14 March 1990 see column 6, line 45 - column 7, line 5; figure 2 -----	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier document but published on or after the international filing date  
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  
 "&" document member of the same patent family

Date of the actual completion of the international search

7 June 1999

Date of mailing of the international search report

14/06/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Puhl, A

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Publication No

PCT/SI 99/00003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2679362	A	22-01-1993	NONE	
SI 9300366	A	31-12-1993	NONE	
WO 8809546	A	01-12-1988	AU 611156 B AU 1720688 A DE 8890059 U EP 0314730 A JP 1503812 T	06-06-1991 21-12-1988 01-06-1989 10-05-1989 21-12-1989
EP 0357942	A	14-03-1990	CH 677156 A JP 2186695 A	15-04-1991 20-07-1990

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/SI 99/00003

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 G09F11/02 G09F13/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 679 362 A (PROGYR) 22 January 1993 see the whole document ---	1,6
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

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NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Puhl, A

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Publication No

PCT/SI 99/00003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2679362	A	22-01-1993	NONE	
SI 9300366	A	31-12-1993	NONE	
WO 8809546	A	01-12-1988	AU 611156 B	06-06-1991
			AU 1720688 A	21-12-1988
			DE 8890059 U	01-06-1989
			EP 0314730 A	10-05-1989
			JP 1503812 T	21-12-1989
EP 0357942	A	14-03-1990	CH 677156 A	15-04-1991
			JP 2186695 A	20-07-1990

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P-012/99</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. <b>PCT/SI99/00003</b>	International filing date (day/month/year) <b>05/02/1999</b>	Priority date (day/month/year) <b>17/02/1998</b>
International Patent Classification (IPC) or national classification and IPC <b>G09F11/02</b>		
Applicant <b>JURJAVCIC, Damjan et al.</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of      sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I    <input checked="" type="checkbox"/> Basis of the report</li> <li>II   <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV   <input type="checkbox"/> Lack of unity of invention</li> <li>V    <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI   <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>31/08/1999</b>	Date of completion of this report  <div style="text-align: right; font-size: 1.2em;"><b>23. 12. 99</b></div>	
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80293 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized officer  <b>Louvion, B</b>  Telephone No. +49 89 2399 2845	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SI99/00003

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-9 as originally filed

**Claims, No.:**

1-6 as originally filed

**Drawings, sheets:**

1/5-5/5 as originally filed

2. The amendments have resulted in the cancellation of:

☐ the description, pages:

☐ the claims, Nos.:

☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SI99/00003

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-6
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-6
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-6
	No:	Claims	

**2. Citations and explanations**

**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/SI99/00003

**I. Ad Section I.:**

- 1 Reference is made to the following documents:
- D1: FR-A-2 679 362 (PROGYR) 22 January 1993
  - D2: SI-A-9 300 366 (JURJAVCIC DAMJAN) 31 December 1993
  - D3: WO 88 09546 A (TECHNOLIZENZ BV ;BUECHEL KURT F (LI)) 1 December 1988
  - D4: EP-A-0 357 942 (DEN HAAG INTERLICENSE BV) 14 March 1990

**II. Ad Section V.:**

- 2 The claimed invention for which protection is sought can be made or used (in the technological sense) in any kind of industry and shall therefore be considered industrially applicable according to Article 33(4)PCT.
- 3 Independent claims 1 & 6 : Document D1, which is considered to represent the most relevant state of the art, discloses a device from which the subject-matter of claims 1 & 6 differs in the features of the characterising part of the respective claim.
- 3.1 The subject-matter of claims 1 & 6 is therefore novel (Article 33(2) PCT).
- 4 As none of the cited documents renders obvious the characterising features of the independent claims 1 & 6 in combination with D1, the claims 1 & 6 of the present application are considered as involving an inventive step (Article 33(3) PCT).
- 4.1 More particularly, objects surrounded by an opaque cylinder having a transparent slot (claim 1) and the display of these objects being made of columns being visible only in one direction from the viewing angle (claim 6) are not to be found in the available prior art.
- 5 Claims 2-5 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/SI99/00003

**III. Ad Section VII.:**

- 6 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
- 6.1 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

# PATENT COOPERATION TREATY

WO 99/41729  
PCT/SI99/00003

PCT

From the INTERNATIONAL BUREAU

## NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

PIPAN, Marjan  
Kotnikova 5  
1000 Ljubljana  
SLOVENIE

Date of mailing (day/month/year)  
19 August 1999 (19.08.99)

Applicant's or agent's file reference  
P-012/99

### IMPORTANT NOTICE

International application No.  
PCT/SI99/00003

International filing date (day/month/year)  
05 February 1999 (05.02.99)

Priority date (day/month/year)  
17 February 1998 (17.02.98)

Applicant  
JURJAVC^ZIC^Z, Damjan et al

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:  
AU,CN,EP,IL,JP,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:  
AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CU,CZ,DE,DK,EA,EE,ES,FI,GB,GD,GE,GH,GM,HR,HU,  
ID,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,  
SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,UZ,VN,YU,ZW  
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the International application as published by the International Bureau on  
19 August 1999 (19.08.99) under No. WO 99/41729

### REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

### REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the International application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

J. Zahra

Facsimile No. (41-22) 740.14.35

Telephone No. (41-22) 338.83.38

Form PCT/IB/308 (July 1996)

2784366

M-H

17

PATENT COOPERATION TREATY

PCT

REC'D 05 JAN 2000

WIPO PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P-012/99	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SI99/00003	International filing date (day/month/year) 05/02/1999	Priority date (day/month/year) 17/02/1998
International Patent Classification (IPC) or national classification and IPC G09F11/02		
Applicant JURJAVCIC, Damjan et al.		

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These annexes consist of a total of sheets.

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- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  31/08/1999	Date of completion of this report  23.12.99
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Louvion, B  Telephone No. +49 89 2399 2845  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/SI99/00003

## I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

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1-9 as originally filed

### Claims, No.:

1-6 as originally filed

### Drawings, sheets:

1/5-5/5 as originally filed

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- ☐ the claims, Nos.:
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4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SI99/00003

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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Novelty (N)	Yes:	Claims	1-6
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-6
	No:	Claims	
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	No:	Claims	

**2. Citations and explanations**

**see separate sheet**

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**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/SI99/00003

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